

IMECHE

DESIGN CHALLENGE

2021 PROJECT UPDATE

The following provides guidance for universities planning courses and practical engineering activities for the year ahead.

The IMechE can confirm that the Design Challenge will be running a full programme for first- and second-year students in the coming year. The format of designing a working device will remain the overriding principle. Students may not know when they will be returning to campus or may face the prospect of having no access to workshop facilities for the foreseeable future. As a result, the competition will introduce novel initiatives. For teams that manage to build a physical device, the regional and national finals will include the facility to run live competitions for teams that cannot attend in person. The new format will also allow teams that cannot build a physical device to compete. To achieve this, the IMechE is developing an app that will simulate performance based on the physical characteristics of a device. Teams with virtual devices will have access to the app to aid development of their designs. On finals day, teams will compete live against each other in a virtual race. Teams may enter either the physical or virtual competition run, but not both.

The project this coming year will be the Repeatable Vehicle. The full specification will be released in September, with the technical challenge being the same as in previous years. Minor amendments to the regulations will be made to help with manufacture and to accommodate virtual entries. For example, the cost of 3D printing may be reduced in the rules to ease manufacture and encourage teams to attempt to build a physical device. The requirement to build an official competition lane will be amended so that teams can compete remotely running along the floor against a wall, for example. Because the virtual competition cannot be based on accuracy, it will instead be a test of speed and energy use.

For both physical and virtual teams, there will be a renewed emphasis in producing accurate, detailed CAD models of their vehicles. There will be a requirement to submit these models as part of the competition. Design data will need to be verified, and teams may be asked to produce a sample 3D printed item as part of the validation. The IMechE will aid teams with access to additive manufacturing facilities.

This year will also see the launch of a new online portal in September dedicated to the competition, to provide everything from team registration, educational material and opportunities for students to collaborate with industry sponsors.

It is not possible to cover every unknown right now, but these details should allow plans to be made given the uncertainty that persists. Please address any questions to Jelena Gacesa Jelena.Gacesa@IMECHE.org.